# ATTACHMENT G

# TECHNICAL AREA (TA) 16 OPEN BURNING UNITS MANAGEMENT

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| | |
|---|---|
| 20.4.1 NMAC | New Mexico Administrative Code, Title 20, Chapter 4, Part 1 |
| AEHA | U.S. Army Environmental Hygiene Agency |
| BTU/hr | British thermal units per hour |
| $^{o}$C | degrees centigrade |
| DOE | U.S. Department of Energy |
| ESA | Engineering Science and Applications |
| ft | feet/foot |
| HE | high explosives |
| LANL | Los Alamos National Laboratory |
| NMED | New Mexico Environment Department |
| OB | open burning |
| PPE | personal protective equipment |
| PTLA | Protection Technology Los Alamos |
| SOP | standard operating procedure |
| TA | technical area |
| WMM | Weapon Materials and Manufacturing |

# ATTACHMENT G
# TECHNICAL AREA (TA) 16 OPEN BURNING UNITS MANAGEMENT

The information provided in this attachment is submitted to address the applicable miscellaneous unit requirements of the New Mexico Administrative Code, Title 20, Chapter 4, Part 1 (20.4.1 NMAC) § 270.23, and 20.4.1 NMAC, Subpart V, Part 264, Subpart X, revised June 14, 2000 [6-14-00], as well as thermal treatment requirements in 20.4.1 NMAC, Subpart VI, Part 265, Subpart P [6-14-00]. This attachment provides an overview of current facility operations and waste management practices for the open burning (OB) units at the Technical Area (TA) 16 Burn Ground and complements the information provided in Section 2.0 of this permit renewal application. It includes detailed descriptions of the OB treatment units, their locations within the Burn Ground, and the current operational and waste management practices associated with them. Requirements for treatment effectiveness; ignitable, reactive, and incompatible wastes; security and access; preparedness and prevention; and volatile organic air emission standards are also discussed. Table G-1 summarizes applicable regulatory references for miscellaneous units and the corresponding location where the requirement is addressed in this permit renewal application.

The TA-16 Burn Ground and the OB units (Figures G-1 and G-2) are managed by Los Alamos National Laboratory's (LANL's) Engineering Science and Applications (ESA)-Weapon Materials and Manufacturing (WMM) Group, which is responsible for the safe treatment, storage, and handling of high explosives (HE)-contaminated waste material generated by the HE production facilities.

## G.1 TA-16 OPEN BURNING UNITS

TA-16 is located in the southwestern quadrant of LANL at the west end of the Pajarito Plateau, near the foothills of the Jemez Mountains (see Figure A-1 in Attachment A). The TA-16 OB units are described below.

### G.1.1 TA-16-388 Flash Pad

In 1998, the New Mexico Environment Department (NMED) granted LANL Temporary Authorization to upgrade the TA-16-388 HE Burn Tray to a propane-fueled flash pad and burn tray. The upgrade began shortly thereafter. The new designation for TA-16-388 was reflected in the "Los Alamos National Laboratory General Part A Permit Application," Revision 0.0 (LANL,

1998), submitted to the NMED in April 1998. The TA-16-388 conversion was subsequently approved by the NMED on May 12, 1999, as a Change During Interim Status, pursuant to 20.4.1 NMAC § 270.72 [6-14-00].

The TA-16-388 Flash Pad (Figures G-3 and G-4) consists of a 22-foot (ft) by 22-ft concrete pad set on a secondary containment area. The base of the flash pad is 12 inches thick. The entire flash pad is contained in a 45-mil Hypalon liner, which is 6 inches below the bottom of the pad and curved up to ground level on all 4 sides, extending out 2 ft from the pad perimeter. Inset one ft from the edge of the concrete pad along the two sides and back is a 3-ft-high, 8-inch-thick, integrally-poured concrete wall. The pad is slanted down toward the back concrete wall, thus providing secondary containment for any spills or run-on/runoff of stormwater. These are collected in the rear of the pad where they either evaporate or can be collected by one of the Burn Ground HE wastewater tank trucks.

Between burns, the unit can be covered with a retractable steel roof, tarps, or other types of covers, unless ash sampling, ash removal, or waste staging requires that the cover be retracted. When waste is being staged or if burning is delayed, the retractable roof, tarps, or other types of covers may be used to cover the waste and prevent it from becoming wind-blown.

The maximum treatment capacity of the flash pad is estimated at 40,000 pounds of solids per burn to accommodate the weights of large machine tools and other equipment. However, large burns are conducted only when absolutely necessary because it is more difficult to assure the HE is destroyed on all materials treated. Instead, burns of several hundred pounds of solids are usually conducted. Liquids are also treated on the flash pad, using steel trays. Although the trays used to treat liquids will hold approximately 100 gallons, usually only about 5 to 30 gallons of liquid waste are treated in any batch. Face shields or other suitable eye protection are worn while liquid is discharged and during cleanup operations when airborne particles constitute an eye hazard. Respirators may be worn when highly hazardous volatile solvents are being handled. Up to 1,000 pounds of wet explosives (e.g., machining chips and filtered HE particles) are also treated at TA-16-388. Occasionally, the wet HE may also contain small amounts of solvents or acids and bases. The propane burners are used to dry the explosives, which burn as they dry. In the event that TA-16-399 is not operational, dry explosives may also be treated at TA-16-388.

The configuration of the flash pad and burners is shown on Figure G-4. The heat sources for the flash pad consist of three 5-ft-long forced-air propane burners with adjustable mounts. A burner is mounted outside the wall on each side and the back of the pad. One to three burners can be used, depending on the amount and configuration of the material to be flashed. The total capacity of the propane supply system is approximately 7 million British thermal units per hour (BTU/hr). Therefore, the output of each burner is dependent on how many are used for a burn. Usually, they are operated at approximately 2 million BTU/hr. This provides adequate heat to bring the material being flashed to a temperature sufficient to destroy HE, typically to a temperature above 400 degrees centigrade (ºC) (see Section G.2.1). To accommodate burning of wet explosives on the TA-16-388 Flash Pad, the propane burners will be modified to remotely pan and tilt. ESA-WMM intends to replace the propane with natural gas to provide a more efficient fuel. The burners and other components will be maintained, modified, and/or replaced, as needed.

Television cameras mounted above the front of TA-16-388 monitor operations at the flash pad, and Burn Ground personnel observe the operations on the monitor in the Control Building (TA-16-389). Lockout keys for the power that operates the flash pad are also located in the Control Building. The lockout keys are removed and carried by personnel working at the flash pad. Once the flash pad has been set up for a treatment and has been barricaded to prevent traffic from approaching the pad, personnel return to the Control Building and monitor the burners using a computer display.

Movable steel equipment is used on the TA-16-388 Flash Pad to stage the many types of HE-contaminated waste to be treated at the pad. This equipment is constructed to be moved with a forklift and will be stored at the unit. One type of waste treated is large, metallic equipment that has been used for HE machining, handling, transportation, and storage. Several steel pallets are positioned in the middle of the flash pad and the equipment to be treated is set on the steel pallets. The pallets protect the integrity of the concrete pad, preventing deterioration caused by the heat and by mechanical impacts. Thermocouples can be placed on and within the equipment being flashed to measure temperatures and document that the materials reached and maintained the required temperature levels for the necessary time (see Section G.2.1).

Much of the noncombustible waste consists of smaller metal items that can be moved by hand. These items are treated in a steel tray, which is lined on the bottom with sand and on the sides

with firebrick. The smaller metal items are positioned in this tray for treatment. After cooling, the items can be reoriented for additional treatment. Thermocouples can be used to determine treatment durations for specific waste streams (see Section G.2.1).

Steel trays are also used in treating combustible solids. Cardboard HE storage containers, cloth and paper used to clean HE, packing material for HE, wooden HE packing crates, and rags used to absorb oil from around HE-processing machines are some of the common combustible materials that must be treated. These materials are stacked on the steel tray and covered with a steel screen. The burners are used to thoroughly ignite the material and may be turned off if the burn is self-sustaining. Before removing the residues (if any), the material is inspected for thorough combustion and burned again, if necessary.

A steel tray, combined with a smaller steel tray, is used to destroy HE contamination in small batches of water-solvent solutions, acids, bases, or oils. These wastes are usually received in small polyethylene jars packed in a secondary container. These liquids are placed in the smaller tray and the propane-fired burners are used to ignite combustible gases and heat HE to the temperatures necessary for its destruction (see Section G.2.1).

Soil contaminated with explosives, residues from the TA-16-399 HE Burn Tray that require further treatment, and similar contaminated noncombustible particulate matter are also treated at the flash pad. These waste types are placed in a tray that is set on an open frame and covered with a steel plate. This assembly is set in the middle of another tray. Thermocouples can be set in the middle of the particulate matter to monitor the temperature (see Section G.2.1).

In addition to the steel pallets and steel trays already described, several other movable steel devices are being considered for use on the flash pad to optimize burning and/or prevent waste compaction. The first device is a cage of expanded steel screen to better contain combustibles during burning. The second device is an apparatus for treating the noncombustible particulate material described above in a more efficient manner. For the second device, one method being considered is to trap the material between two narrowly separated steel plates and heat both plates until the desired temperature is reached. The treated material would then be released into a container and the apparatus would be refilled from a hopper. A second method is to continuously release the material from a hopper, through a flame, and into a container. A third

device required may be steel stands on which HE-contaminated pipes are supported. As waste types change, other devices may be needed to effectively treat the wastes.

### G.1.2 TA-16-399 HE Burn Tray

The TA-16-399 HE Burn Tray is a 4-ft-wide, 16-ft-long steel tray, supported on 1.5-ft-high legs, and lined with firebricks (Figure G-5). The treatment capacity of the TA-16-399 HE Burn Tray is 1,000 pounds of waste per burn. Explosives to be burned, usually rejects from pressing and machining operations and also HE pieces that are no longer useful, are transported to the HE burn tray packed in cardboard and wooden boxes. Padding is placed on the tray and the explosives are removed from the boxes and set on the padding. The padding is then dampened with kerosene, electric matches (squibs) are connected to the firing cables, and a train of excelsior saturated with kerosene is run from the squibs to the padding. All personnel then go to the Control Building and the squibs are fired remotely. The burn is observed by Burn Ground personnel located in the Control Building, using a television camera located near TA-16-388 and a monitor and a periscope located in the Control Building. The ash is later inspected for unburned HE or other residues that do not appear to be fully treated. The cover of the TA-16-399 HE Burn Tray is placed over the residue until it can either be treated again on the burn tray or on the TA-16-388 Flash Pad.

Between burns, the TA-16-399 HE Burn Tray is covered, unless an ash sample is being collected, ash is being removed, or waste is being staged. The portable cover or a tarp is used to cover the unit.

## G.2 OPERATIONAL AND WASTE MANAGEMENT PRACTICES

The OB units at TA-16 treat only hazardous solid and liquid wastes that are either pure HE or contaminated with HE. This section describes the operational and waste management practices used to stage and treat the waste, as well as the disposition of residues. Information on treatment effectiveness; ignitable, reactive, and incompatible wastes; security and access; preparedness and prevention; and volatile organic air emissions standards are also presented herein. The waste streams treated at these units are described in Table B-6 of Appendix B in the most recent version of the "Los Alamos National Laboratory General Part B Permit Application," hereinafter referred to as the LANL General Part B.

### G.2.1 General Burning Procedures

Treatment of hazardous waste at the TA-16 OB units is conducted using a non-continuous [batch] thermal treatment process, in accordance with the requirements specified in 20.4.1 NMAC § 265.373 [6-14-00]. Open burning of wastes at the TA-16 OB units is conducted in a manner that does not threaten human health or the environment. Prior to OB operations at the TA-16 Burn Ground, the area is cleared of all but authorized Burn Ground personnel. A barrier is placed across the road to prevent entry.

The closest property not owned by LANL is at a distance greater than one mile from the TA-16 OB units. Therefore, a safe distance is maintained between the HE burn sites and the property of others, as required in 20.4.1 NMAC § 265.382 [6-14-00].

The master controls for each of the TA-16 OB unit's firing circuits are located inside the Control Building. The Control Building is no less than 300 ft from all OB operations. Operational procedures require that OB not be undertaken at a time of impending electrical storms and during high wind conditions. OB may also be restricted during periods of high fire danger and adverse atmospheric conditions. All OB operations are conducted in accordance with appropriate LANL standard operating procedures (SOP). Adherence to the SOPs ensures safe and efficient HE destruction and decontamination of flashed materials. Although it is highly unlikely, both of the TA-16 OB units could be operated in one day.

A minimum temperature of 400 ºC has been determined as the temperature needed to thermally degrade the types of HE-contaminated wastes generated at LANL and treated at the TA-16 OB units. For incombustible solid HE-contaminated wastes, thermocouples can be placed on the wastes to be treated and temperatures monitored to determine the treatment duration for various waste streams. Thermocouples can also be used when a new waste type is introduced and the treatment duration needs to be determined. For liquids, heat is applied until the liquids are consumed. In the unlikely event that complete destruction of HE cannot be achieved, any incompletely treated wastes are treated again.

G.2.2 Waste Staging

Waste staging varies by treatment process. The factors influencing how wastes are staged are safety, the degree of difficulty in placing or removing wastes from an OB unit, and the influence of weather conditions. The staging procedures by unit are described below.

Bulk HE treated at the TA-16-399 HE Burn Tray and at the TA-16-388 Flash Pad are initially accumulated in less-than-90-day storage areas and satellite accumulation areas until the day of treatment. Safety concerns dictate that HE be immediately burned after arriving at the Burn Ground. These wastes are not staged unless they can be burned immediately.

Because the amount of liquid waste treated at the TA-16-388 Flash Pad is small and staging of this waste does not involve complicated collection and transport procedures, the waste to be treated is transported from less-than-90-day storage areas and satellite accumulation areas just before a planned burn. It is usually possible to ensure that the environmental conditions (e.g., wind speed, fire conditions) required by the NMED Air Quality Bureau can be met before the waste is staged. In the event of an unforeseen delay, the waste is covered until it can be burned.

The most difficult wastes to stage are the solids treated at the TA-16-388 Flash Pad. The wastes are accumulated in less-than-90-day storage areas and satellite accumulation areas until several days before flashing. Depending on the size and amount of waste to be flashed, it may take several days to stage the waste on the pad. The waste material to be treated may include relatively large quantities that involve extensive scheduling of collection and transport resources, may require equipment such as cranes or additional procedures for lifting large pieces, and require complicated stacking arrangements on removable steel supports. Because the staging of this material is complex, it may not always be possible to ensure that the meteorological conditions required for good dispersion will exist at the scheduled burn time. If burning is delayed, a cover is placed over the waste.

G.2.3 Waste Management Practices [20.4.1 NMAC, Subpart V, Part 264, Subpart X]

The wastes treated are both homogeneous (e.g., solid explosives, scrap explosives) and heterogeneous (e.g., excess equipment, remediation debris). The waste streams are described in Appendix B of the LANL General Part B. The wastes are treated to remove the characteristic of reactivity, although other characteristic and listed hazardous waste may be present in the

wastes being treated. Whereas burning will treat a number of waste constituents (e.g., HE, solvents), metals (if present) will not be destroyed. They will remain in the residues, which are characterized by acceptable knowledge or are sampled and analyzed for appropriate Toxicity Characteristic Leaching Procedure metals and other metallic underlying hazardous constituents, as needed. If hazardous, the residues are sent to an appropriate permitted facility for treatment/disposal. HE-contaminated wastes may be treated at the TA-16 OB units to desensitize or declassify the waste. Components of the OB units (e.g., burn trays, steel plates) consist of nonhazardous materials only (e.g., steel).

Waste containers for small pieces of explosives-contaminated waste and explosive material generally consist of plastic bags, 55-gallon drums, 30-gallon carboys, or paper-lined cardboard boxes. The waste is placed within a container, sealed, and labeled appropriately. These waste containers are then stored in a less-than-90-day storage area or a satellite accumulation area. Pieces of waste that cannot fit into boxes or drums (e.g., large equipment and debris) are stored in movable storage bins, such as covered roll-off bins. These bins are designated as less-than-90-day accumulation areas. They can be transported directly to the TA-16 OB units for staging and subsequent treatment of the waste.

Waste to be treated is collected from various less-than-90-day storage areas and satellite accumulation areas at the facility. When loading waste, the cargo compartment of the transport vehicle(s) is checked to ensure that it is clean and contains no loose items such as tools or pieces of metal. For transport, the wastes are placed in an enclosed compartment or secured with tie-downs. The load limit for transporting explosives is determined by the capacity of the transport vehicle(s). Wastes are transported by appropriately trained personnel in a designated vehicle(s) to the TA-16 Burn Ground. The waste is unloaded from the vehicle(s) and placed at the OB unit by qualified technicians/specialists. A visual examination is conducted after unloading to ensure that no explosive material remains in the transport vehicle(s).

Wetting of an area around a TA-16 OB unit prior to use is done only when vegetation is dry enough to create a potential fire danger. A garden hose is used and only the ground surface is wetted. The amount of water is not sufficient to cause ponding, erosion, or act as a driving force for dispersing legacy contamination from past uses of the area.

For safety reasons, the U.S. Department of Energy (DOE) Explosives Safety Manual (DOE M 440.1-1; DOE, 1996) requires that no entry should be allowed into the treatment area until 8 hours have elapsed, unless it can be determined through visual observation that all explosives have been destroyed. The manual also requires that no ash be collected or removed for 24 hours following a burn. In accordance with this requirement, ash is usually removed, drummed, and sampled (if necessary) immediately after the 24-hour period, unless a visual inspection and/or HE Spot Test indicates that the waste must be treated again, or if the ash is heterogeneous and requires special sampling. In the first case, the waste is left on the structure, covered, and treated again as soon as weather conditions allow. In the second case, the ash is covered until sampling personnel can be scheduled to conduct proper sampling (typically in a day or two); as soon as samples are collected, the ash is drummed. Drums containing the ash are stored in a less-than-90-day storage area. The ash is then sent off site for disposal or for further treatment, based on the analytical results and on the original U.S. Environmental Protection Agency Hazardous Waste Numbers assigned to the waste before treatment. Scrap metal that can be certified as free of HE is sent off site for recycling. Other residues are disposed as New Mexico Special Waste in accordance with 20.9.1 NMAC in a landfill licensed to accept these wastes.

LANL minimizes the impact to the environment by conducting treatment operations in a strictly controlled, remote area within the LANL boundaries. Treatment operations are not conducted during adverse conditions to minimize wind dispersal of ash and particulate matter to the environment. Wind dispersal of ash is minimized by prohibiting burns during periods of high winds, removing ash as soon as practicable, and for waste types likely to generate ash (e.g., cardboard boxes, wipes), covering the waste with a screen prior to burning. Ash production has also been minimized through the use of propane burners instead of wood as fuel.

### G.2.4 Treatment Effectiveness [20.4.1 NMAC § 270.23(d)]

To address the applicable miscellaneous unit requirement specified in 20.4.1 NMAC § 270.23(d) [6-14-00], a demonstration of treatment effectiveness must be included for the TA-16 OB units. As indicated in the U.S. Army Environmental Hygiene Agency (AEHA) guidance document titled "RCRA Part B Permit Writer's Guidance Manual for Department of Defense Open Burning/Open Detonation Units" (AEHA, 1987), a demonstration of treatment effectiveness can be based on laboratory or field data. For wastes treated by OB, information demonstrating that any residues remaining after burning are not reactive (i.e., as defined by the

Resource Conservation and Recovery Act) should be provided. At the TA-16 OB units, this is accomplished by testing the residue for HE. If HE is present in the residue, it is treated again.

G.2.5 Ignitable, Reactive, and Incompatible Wastes [20.4.1 NMAC § 264.17(a)]

Applicable requirements for the management of ignitable, reactive, and incompatible wastes at the TA-16 OB units are addressed in Section 2.5 of this permit renewal application. This information is provided to meet the requirements of 20.4.1 NMAC § 270.14(b)(9), and 20.4.1 NMAC § 264.17(a) and (b) [6-14-00].

G.2.6 Security and Access [20.4.1 NMAC §§ 270.14(b)(4) and 270.14(b)(19)(viii); 20.4.1 NMAC § 264.14]

The following describes the security features in place at the TA-16 Burn Ground in accordance with the requirements of 20.4.1 NMAC §§ 270.14(b)(4) and 270.14(b)(19)(viii), and 20.4.1 NMAC § 264.14 [6-14-00].

After clearing non-authorized personnel from the OB unit area, a barrier is placed across the road before OB operations are conducted to reduce the possibility of entry into this area. In accordance with 20.4.1 NMAC § 270.14(b)(19)(viii) [6-14-00], the locations of the security fence and access gates at TA-16 are shown on Figure A-8 of Attachment A. (The locations of fences and gates are subject to change.) Collectively, these security procedures and the security features discussed below prevent the unknowing entry and minimize the possibility for unauthorized entry of persons into the units, in accordance with the requirements of 20.4.1 NMAC § 264.14(b)(2) [6-14-00].

The TA-16 OB units are located within a secured area at which security is maintained through both administrative controls and physical barriers. Access to the area can only be gained through controlled entry stations by persons possessing appropriate security clearance and site-specific training. The access stations are controlled by Protection Technology Los Alamos (PTLA) security personnel or by badge and palm readers 24 hours a day. In addition, entry into the Burn Ground is through an industrial fence with access granted through an ESA-controlled station. PTLA security personnel inspect security fences on a regular basis, and repairs are made as necessary. Warning signs are posted near the entrance to the area and can be seen by personnel approaching the area. The legends on the signs indicate "Danger--Authorized Personnel Only" or “Danger--Unauthorized Personnel Keep Out.” Warning signs are legible from a distance of 25 ft and are written in English and Spanish.

### G.2.7 Preparedness and Prevention Requirements [20.4.1 NMAC, Subpart V, Part 264, Subpart C]

The following sections present how operations at the TA-16 OB units comply with the preparedness and prevention requirements of 20.4.1 NMAC, Subpart V, Part 264, Subpart C [6-14-00].

#### G.2.7.1 Required Equipment [20.4.1 NMAC § 264.32]

In accordance with the requirements of 20.4.1 NMAC § 264.32 [6-14-00], the TA-16 Burn Ground is equipped with adequate emergency equipment, which includes internal and external communication equipment, alarm systems, fire extinguishers, and fire control and decontamination equipment. Emergency equipment at the Burn Ground is discussed in the following sections and is summarized in Table E-1 in Attachment E of this permit renewal application. LANL-wide emergency equipment available for use at any of the LANL waste management units is presented in Appendix E of the LANL General Part B.

#### G.2.7.2 Testing and Maintenance of Equipment [20.4.1 NMAC § 264.33]

Communications and alarm systems and fire protection and decontamination equipment associated with the OB units are tested and maintained according to the inspection schedule detailed in Appendix C of the LANL General Part B. The frequency of inspection is adequate to assure proper operation in the event of an emergency. Repair and replacement of emergency equipment are performed, as needed.

#### G.2.7.3 Access to Communications or Alarm Systems [20.4.1 NMAC § 264.34]

Whenever treatment operations are being conducted at the OB units, personnel have immediate access to an emergency communication device, either directly or through visual or voice contact with another individual. In the event of an emergency, two-way radios, pagers, and/or telephones allow personnel to contact the operating group management, the Emergency Management and Response Office, and/or the Central Alarm Station operator (refer to Appendix E of the LANL General Part B).

#### G.2.7.4 Space Requirements [20.4.1 NMAC § 264.35]

Adequate space is maintained at the TA-16 OB units to allow the unobstructed movement of personnel and fire protection, spill control, and decontamination equipment in the event of an emergency.

G.2.7.5 Support Agreements with Outside Agencies [20.4.1 NMAC § 264.37]

Information on support agreements with outside agencies, as required by 20.4.1 NMAC § 264.37 [6-14-00], is presented in Section 2.0 of the LANL General Part B.

G.2.7.6 Preventive Procedures, Structures, and Equipment [20.4.1 NMAC § 270.14(b)(8)]

Descriptions of the preventive procedures, structures, and equipment at the TA-16 OB units are presented below. This information is provided in accordance with the requirements of 20.4.1 NMAC § 270.14(b)(8) [6-14-00]. Adherence to the procedures and proper use of the structures and equipment will help to prevent hazards, prevent undue exposure of personnel to hazardous waste, and prevent releases to the environment.

At the TA-16 OB units, large pieces of explosives-contaminated waste or explosive materials are typically handled using mechanical equipment such as a truck-mounted crane or a hydraulic lift gate. Small containers of waste are handled manually or with a dolly. The use of proper handling equipment, appropriate to the size and weight of the waste item, helps to prevent hazards while moving waste at the units. Additionally, personnel involved in waste-handling and container-handling operations at the units are knowledgeable about the physical and chemical properties of the waste managed at the site and take additional precautions, as necessary, to ensure that wastes are handled safely.

Pursuant to the requirements of 20.4.1 NMAC § 270.14(b)(19)(xi) [6-14-00], Figure A-5 in Attachment A shows surface contours and drainage around the units. Engineering controls are in place to prevent runoff of wastes from the units to other areas of the facility or to the environment (see Figure A-9 in Attachment A).

It is not anticipated that there will be any impact to groundwater or other water supplies as a result of treatment operations at the units because engineering and operational controls ensure that run-on and runoff are minimized. The TA-16-388 Flash Pad is equipped with a retractable cover and secondary containment to prevent run-on and runoff. The TA-16-399 HE Burn Tray is equipped with a movable cover to prevent run-on into this structure. Tarps or other types of covers may also be used at the TA-16-388 Flash Pad and the TA-16-399 HE Burn Tray.

Electrical power is supplied to the Control Building. Supplied power at this building operates lighting, telephone, alarm, and monitoring systems. Operations at the units would be discontinued temporarily if electrical power was not restored quickly.

Safety shoes, safety glasses, and other personal protective equipment (PPE) required in explosives areas are worn by workers during routine operations at the units. Additional appropriate PPE is available should abnormal or unusual conditions require such equipment.

Releases to the atmosphere resulting from treatment activities at the units cannot be prevented. However, impacts are kept to a minimum through operating practices and burning under appropriate atmospheric conditions. Air releases from OB operations are regulated by NMED's Air Quality Bureau under 20.2.60 NMAC. The regulation of air impacts is discussed further in Section H.5.

G.2.7.7 Prevention of Accidental Ignition or Reaction of Ignitable, Reactive, or Incompatible Waste [20.4.1 NMAC §§ 270.14(b)(9) and 270.15(c) and (d); and 20.4.1 NMAC § 264.17]

This section details the precautions taken to prevent accidental ignition or reaction of ignitable, reactive, or incompatible wastes at the TA-16 OB units.

Ignitable or reactive wastes are located at least 50 ft from the facility's property line at all times and are protected from sources of ignition or reaction. Smoking is not permitted in areas where wastes are managed. Signs indicating "No Smoking" are conspicuously placed near the entrance to the units, as required by 20.4.1 NMAC § 264.17(a) [6-14-00]. Together, these measures meet the requirements of 20.4.1 NMAC §§ 264.17(a) and (b) and 264.176 [6-14-00].

Incompatible wastes, if managed at the units, will be segregated to prevent adverse reactions from occurring through commingling of the wastes. In addition, no incompatible wastes will be mixed, and no waste will be placed in a container that previously held an incompatible waste, as required by 20.4.1 NMAC § 264.177(a) and (b), and 20.4.1 NMAC § 270.15(d) [6-14-00]. If incompatible wastes are managed at the units, the requirements of 20.4.1 NMAC § 264.177(c) [6-14-00], will also be met. Only containers made of or lined with materials that will not react with and are otherwise compatible with the waste to be managed will be used at the units.

G.2.8 Volatile Organic Air Emission Standards [20.4.1 NMAC, Subpart V, Part 264,

Subpart CC]

The TA-16 OB units are not subject to 20.4.1 NMAC, Subpart V, Part 264, Subpart CC [6-14-00], "Air Emission Standards for Tanks, Surface Impoundments, and Containers," based on the applicability criteria specified in 20.4.1 NMAC § 264.1080(b)(2) [6-14-00]. The hazardous wastes accepted in containers for treatment at the OB units have a design capacity less than or equal to 0.1 cubic meters (approximately 26 gallons); therefore, the requirements of 20.4.1 NMAC, Subpart V, Part 264, Subpart CC are not applicable to the TA-16 OB units.

## G.3 REFERENCES

AEHA, 1987, "RCRA Part B Permit Writers' Guidance Manual for Department of Defense Open Burning/Open Detonation Units," U.S. Army Environmental Hygiene Agency, Aberdeen Proving Ground, Maryland.

DOE, 1996, "DOE Explosives Safety Manual," DOE M 440.1-1, Revision 8.0, with changes approved by the DOE Explosives Safety Committee.

LANL, 1998, "Los Alamos National Laboratory General Part A Permit Application," Revision 0.0, Los Alamos National Laboratory, Los Alamos, New Mexico.

## Table G-1

## Miscellaneous Unit Regulatory References and Corresponding Permit Renewal Application Location

| Regulatory Citation(s) | Description of Requirement | Location in this Document |
|---|---|---|
| §264.601(a) | Prevention of release of contaminants to groundwater | 2.0 (2.3, 2.7), Attachment G (G.1, G.2.7.6), Attachment H (H.3) |
| §264.601(a)(1) | Volume and characteristics of waste considering potential for migration through containing structures | 2.0 (2.1, 2.3, 2.7), Attachment G (G.1.1, G.1.2) |
| §264.601(a)(2) | Hydrologic/geologic characteristics | Attachment H (H.2) |
| §264.601(a)(3) | Quality of groundwater including other sources of contamination and their cumulative impact on groundwater | Attachment H (H.2, H.3) |
| §264.601(a)(4) | Quantity and direction of groundwater flow | Attachment H (H.2.4) |
| §264.601(a)(5) | Proximity to and withdrawal rates of potential groundwater users | Attachment H (H.3) |
| §264.601(a)(6) | Regional patterns of land use | Attachment A (A.4) |
| §264.601(a)(7) | Potential for deposition and migration of waste constituents | Attachment H (H.3) |
| §264.601(a)(8) | Potential for health risks caused by human exposure to waste constituents | Attachment H (H.6) |
| §264.601(a)(9) | Potential for damage to domestic animals, wildlife, crops, vegetation, and physical structures caused by exposure to waste constituents | Attachment H (H.6) |
| §264.601(b) | Prevention of release of contaminants to surface water | Attachment G (G.1, G.2.7.6), Attachment H (H.4) |
| §264.601(b)(1) | Volume and characteristics of the waste | 2.0 (2.1, 2.3, 2.7), Attachment G (G.1.1, G.1.2) |
| §264.601(b)(2) | Effectiveness and reliability of containment, confinement, and collection systems and structures | 2.0 (2.3), Attachment G (G.1.1, G.1.2) |
| §264.601(b)(3) | Hydrologic characteristics of the unit and local area | Attachment H (H.2) |
| §264.601(b)(4) | Regional precipitation patterns | Attachment H (H.4) |
| §264.601(b)(5) | Quantity, quality, and direction of groundwater flow | Attachment H (H.2.4) |
| §264.601(b)(6) | Proximity of the unit to surface water | Attachment A (A.4), Attachment H (H.3) |

## Table G-1 (Continued)

## Miscellaneous Unit Regulatory References and Corresponding Permit Renewal Application Location

| Regulatory Citation(s) | Description of Requirement | Location in this Document |
|---|---|---|
| §264.601(b)(7) | Current and potential uses of nearby surface waters and water quality standards for those waters | Attachment H (H.2.5, H.4) |
| §264.601(b)(8) | Quality of surface waters and soils including other sources of contamination and their cumulative impact on surface waters and soils | Attachment H (H.4) |
| §264.601(b)(9) | Regional patterns of land use | Attachment A (A.4) |
| §264.601(b)(10) | Potential for health risks caused by human exposure to waste constituents | Attachment H (H.6) |
| §264.601(b)(11) | Potential for damage to domestic animals, wildlife, crops, vegetation, and physical structures caused by exposure to waste constituents | Attachment H (H.6) |
| §264.601(c) | Prevention of release of contaminants to air | 2.0 (2.3), Attachment G (G.2), Attachment H (H.5) |
| §264.601(c)(1) | Volume and characteristics of waste including its potential for emission | 2.0 (2.1, 2.3, 2.7), Attachment G (G.2) |
| §264.601(c)(2) | Effectiveness and reliability of systems/structures to reduce/prevent emissions of hazardous constituents to the air | 2.0 (2.1, 2.3, 2.7), Attachment G (G.2) |
| §264.601(c)(3) | Operating characteristics of the unit | 2.0 (2.1), Attachment G (G.2) |
| §264.601(c)(4) | Characteristics of the unit and the surrounding area | 2.0, Attachment A (topographic map), Attachment H (H.5) |
| §264.601(c)(5) | Existing quality of the air including other sources of contaminants and their cumulative impact on the air | Attachment H (H.5) |
| §264.601(c)(6) | Potential health risks caused by human exposure to waste constituents | Attachment H (H.6) |
| §264.601(c)(7) | Potential for damage to domestic animals, wildlife, crops, vegetation, and physical structures caused by exposure to waste constituents | Attachment H (H.6) |
| §264.602 | Monitoring, analysis, inspection, response, reporting, and corrective action | 2.0 (2.3, 2.4), 4.0, Attachment C[a], Attachment H |
| §264.603 | Post-closure care | Attachment F |
| §264.15 | General inspection requirements | Attachment C[a] |

## Table G-1 (Continued)

## Miscellaneous Unit Regulatory References and Corresponding Permit Renewal Application Location

| Regulatory Citation(s) | Description of Requirement | Location in this Document |
|---|---|---|
| §264.33 | Testing and Maintenance of Equipment | Attachment G (G.2.7.2) |
| §264.75 | Biennial report | 2.0 (2.3.1) |
| §264.76 | Unmanifested waste report | 2.0 (2.3.2) |
| §264.77 | Additional reports | 2.0 (2.3.3) |
| §264.101 | Corrective action for solid waste management units | 4.0 |

[a] Requirement or information is also addressed in the most recent version of the "Los Alamos National Laboratory General Part B Permit Application," as appropriate.